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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

CLEVELAND, MICHAEL B

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 03/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/799,018

Applicant(s)

BENGSTON, JON

Examiner

Michael Cleveland

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 10-12 and 28-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10-12 and 28-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-8, 11-12, 28-29, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doty et al. (U.S. Patent 3,647,699, hereafter '699) and Gedrat et al. (U.S. Patent 4,285,991) hereafter '991) in view of each other and further in view of Moller (U.S. Patent Application Publication 2006/0000720, hereafter '720).

'699 teaches a method of plating a non-conductive substrate comprising the steps of:

- a) etching the surface of the non-conductive substrate with an etching solution, said etching solution comprising potassium permanganate and phosphoric acid (col. 2, lines 55-57);
- b) activating the etched surface of the non-conductive substrate with a palladium salt (col. 2, lines 60-63); and
- d) electrolessly plating the etched and activated surface (col. 2, lines 63-67).

'699 does not teach activating the substrate by treating with an activating solution that comprises an amine complexor with the palladium salt nor subsequently reducing the palladium with a reducing agent.

However, '991 teaches a method of plating a non-conductive substrate comprising the steps of:

- a) etching the surface of the non-conductive substrate with an etching solution (col. 5, lines 11-15);
- b) activating the etched surface of the non-conductive substrate with an activating solution comprising palladium sulfate and 2-aminopyridine (col. 5, lines 15-20);
- c) contacting the etched and activated surface of the non-conductive substrate with a reducing agent for the palladium (col. 5, lines 15-20); and
- d) electrolessly plating the etched and activated surface (col. 5, lines 21-30).

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'991 does not teach that the etching solution contains potassium permanganate and a mineral acid.

Taking the references as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the particular etching solution of '699 as the etching solution of '991 with a reasonable expectation of success and with the expectation of similar results because '699 teaches that its solution is suitable for etching plastic substrates for subsequent electroless plating. Likewise, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the activating treatment steps of '991 as the particular activating treatment of '699 with a reasonable expectation of success and with the expectation of similar results because '991 teaches that its treatment is suitable to activate etched resin substrates for electroless plating. The selection of something based on its known suitability for its intended use has been held to support a *prima facie* case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

'699 and '991 do not explicitly teach that manganese oxide formed on the substrate during the etching step substantially remains on the surface of the non-conducting substrate in the activating step. However, '720 teaches that by leaving manganese oxide on the surface prior to sensitizing and activating improves brightness and allows treatment of more materials [0037]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have performed the process of '699 and '991 without removing manganese oxide deposited by the permanganate solution to have improved the flexibility of the process and the brightness of the product.

Claim 3: The concentrations of '699 (50-80 vol. % of phosphoric acid and 5 g/l to saturation (which the disclosure teaches is 70 g/l) of potassium permanganate (col. 24-27) are very similar to those of the disclosed preferred composition on p. 10 (45 vol. % phosphoric acid and 50g/l of potassium permanganate. Therefore, it reasonably appears that these solution fall within the preferred pH range of 1-3.

Claims 11-12: '991 teaches that the plating may be via nickel plating solutions that do not contain ammonia (Examples 1-3).

Claim 28: The substrate may be ABS ('699, Abstract; '720, [0053]).

Claims 29 and 32: "Differences in concentration or temperature will not support the

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patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical.” (MPEP 2144.05.II.A.)

3. Claims 10 and 30-31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Doty '699, Gedrat '991, and Moller '720 in view of each other as applied to claim 1 and further in view of Goffredo et al. (U.S. Patent 4,576,685, hereafter '685).

Claim 10: '699 and '991 are discussed above but do not teach that the reducing agent is sodium borohydride in a caustic solution. However, '991 is open to the use of other reducing agents. '685 teaches that sodium borohydride in a pH 12 solution is effective for reducing palladium prior to subsequent electroless plating (col. 5, lines 3-14). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used sodium borohydride in a caustic solution as the particular reducing agent of '699 and '991 with a reasonable expectation of success because '685 teaches that it is a suitable reducing agent for reducing palladium prior to subsequent electroless plating.

Claims 30-31: '699 and '991 are discussed above but do not teach that the activating solution contains boric acid. However, '685 teaches operative activating solutions for electroless plating that boric acid is an operative additive for palladium activating solutions for electroless plating. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included boric acid in the activating solution of '699, '991, and '702 with a reasonable expectation of success because '685 teaches that it is a suitable additive for palladium activating solutions for electroless plating. The subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the range disclosed by the reference because overlapping ranges have been held to be a *prima facie* case of obviousness, see *In re Malagari*, 182 U.S.P.Q. 549.

Response to Arguments

4. Applicant's arguments filed 12/16/2005 have been fully considered but they are not persuasive.

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Applicant argues that the sensitizing treatment is used in the art to remove manganese oxide, citing U.S. 6,645,557 as evidence. The Examiner finds that '557 removes the manganese oxide prior to applying the sensitizing solution, but does not teach that the sensitizing solution removes manganese oxide (see cols. 5-7). However, Foust (U.S. Patent 5,198,096, col. 7, lines 40-50) and Nuzzi (U.S. Patent 4,425,380; col. 8, lines 11-33) appear to support Applicant's argument that the sensitizing solution of Doty is capable of removing at least some of the manganese oxides.

Applicant arguments are unconvincing in view of the teachings of Moller '720, discussed above.

In response to applicant's arguments against '991 individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Cane (U.S. Patent 5,648,125) teaches that removing manganese oxide is optional (col. 14) and that the sensitizing and activating solution may be combined into a single solution (col. 17).

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Cleveland whose telephone number is (571) 272-1418. The examiner can normally be reached on Monday-Thursday, 7-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Michael Cleveland
Primary Examiner
Art Unit 1762

2/22/2006